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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/343,863	06/30/1999	WARREN S. BEITSCHER	10980689-1	8414

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EXAMINER

WISDAHL, ERIC D

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 08/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/343,863

Applicant(s)

BEITSCHER, WARREN S.

Examiner

Eric D Wisdahl

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 7 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 7 recites the limitation "said substantially straight line actuator" in line 4. There is insufficient antecedent basis for this limitation in the claim. It is assumed that applicant intended to say "substantially straight line sensor".

Claim 10 provides for the use of the sensor array and actuator, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

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Claim 10 is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 – 5, 9, 10, 12 – 14, 17 and 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Mutze (DE 4100400 A1).

Regarding Claim 1, Mutze discloses:

- Two-dimensional image plane (Figure 2 item 25);
- High-resolution image sensor spanning a first dimension (Figures 1 and 2 item 20);
- Actuator for moving the high-resolution image sensor through a second dimension of the image plane (Figures 1 and 2 items 16 – 19);
 - While sensor array acquires image data at discrete distance intervals of said second dimension, thereby enabling camera to acquire image data at discrete intervals along an entirety of said image plane.

Note: A complete translation of the document will be forthcoming in the next office action. The examiner has had the aid of a translator in understanding the body of the specification.

Regarding Claim 2, Mutze discloses:

- Control board for receiving image data from the sensor array (Personal computer for storing or processing the image data, Column 3 lines 50 – 53 “personalcomputer”).

Regarding Claim 3, Mutze discloses:

- Image is remotely located from said camera (image is picked up by the photographic reflex camera, “Spiegelreflexkamera” and would thus, inherently be remotely located for the camera);

Regarding Claim 4, Mutze discloses:

- Image changes with time (image is picked up by the photographic reflex camera, “Spiegelreflexkamera” and would thus, inherently change with time);

Regarding Claim 5, Mutze discloses:

- Sensor array comprises a charge coupled device (Abstract “CCD-Zeilensensor 20”);

Regarding Claim 9, Mutze discloses:

- Rotary actuator for rotating the sensor array through the second dimension of said image plane (Figure 2 items 16 – 19, causes the image sensor within the carriage, or saddle, to move linearly along the second dimension through the use of the motor, spindle, saddle and rails by rotating the spindle through the force created by the motor, the spindle causing the carriage to move linearly along the second dimension),
- Wherein the rotation enables the sensor array to acquire image data at closely spaced intervals across the entirety of the image plane (see above).

Regarding Claim 10, Mutze discloses:

- Package including said sensor array and actuator is suitable for retrofitting into an existing camera thereby providing further cost savings (abstract, Column 2 lines 14 – 22).

Regarding Claim 12, Mutze discloses the method comprising the steps of:

- Directing light from a remotely located image towards an image plane within the digital camera (inherent to direct light to the image plane, Figure 2 item 25),
 - Wherein the image plane is a two-dimensional space in said camera toward which light from said image is directed (Figure 2 item 25),
- Rapidly moving a high resolution one-dimensional sensor array which spans the first dimension of the image plane through the second dimension of said image

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plane (Figure 2 items 16 – 20, show the parts needed to move the moving line sensor through the second dimension);

- thereby spanning the image plane as quickly as possible (this is accomplished by scanning the image plane in the above manner);
- Converting the light received by said one-dimensional sensor array into digital image data at closely spaced intervals during said step of rapidly moving (accomplished using the CCD line sensor 20 moving through the image plane 25 through the use of the motor 16, spindle 17, saddle 18 and guide rails 19),
 - thereby acquiring digital image data at closely spaced intervals in two dimensions along an entirety of said image plane and generating two dimensional digital image data.

Regarding Claim 13, Mutze discloses:

- Transmitting the digital image data to a storage device (Personal computer for storing or processing the image data, Column 3 lines 50 – 53 “personalcomputer”);

Regarding Claim 14, Mutze discloses:

- Remotely located image is a three dimensional image (image is picked up by the photographic reflex camera, “Spiegelreflexkamera” and would thus, inherently be a three dimensional image);

Regarding Claim 17, Mutze discloses:

- Sensor array spans a linear dimension of said image plane (Figures 1 and 2 item 20 and Figure 2 item 25)
- Step of moving comprises:
 - Linearly moving said sensor array through a second dimension of said image plane (Figure 2 items 16 – 19, causes the image sensor within the carriage, or saddle, to move linearly along the second dimension through the use of the motor, spindle, saddle and rails);
 - Thereby enabling acquisition of two dimensional image data across entirety of said image plane.

Regarding Claim 18, Mutze discloses:

- Sensor array spans a linear dimension of said image plane (Figures 1 and 2 items 20 and 25)
- Step of moving comprises:
 - Rotating said sensor array through a second dimension of said image plane (Figure 2 items 16 – 19, causes the image sensor within the carriage, or saddle, to move linearly along the second dimension through the use of the motor, spindle, saddle and rails by rotating the spindle through the force created by the motor, the spindle causing the carriage to move along the second dimension);

- Thereby enabling acquisition of two dimensional image data across entirety of said image plane.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mutze (DE 4100400 A1).

Regarding Claim 6, Mutze discloses:

- Using between 10 – 1000 pixel values in an evaluation of a single reading of the image sensor (Column 3 line 54 – Column 4 line 9).

Mutze fails to specifically disclose:

- CCD comprises more than 1000 pixels;

OFFICIAL NOTICE:

- CCD line sensor comprising more than 1000 pixels is well known within the art.

Such an arrangement of using a CCD line sensor with more than 1000 pixels would be advantageous in providing sufficient resolution in the first dimension of the image.

Therefore, it would have been obvious to include the CCD line sensor with more than 1000 pixels so as to provide sufficient resolution in the first dimension of the image.

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Regarding Claim 16, Mutze fails to specifically disclose (at least without the aid of the full translation) Digital image data comprising:

- Brightness information; and
- Color information.

Official Notice:

- Using Brightness and color information in digital image data is well known within the art for efficiently representing the incoming image data.

Such an arrangement of providing brightness and color information would have been advantageous in presenting the incoming image data in a well known manner which is easy to process and store.

Therefore, it would have been obvious to one of ordinary skill in the art to include the digital image data comprising brightness information and color information so as to efficiently represent the incoming image data.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mutze (DE 4100400 A1) in view of Kimura (U.S. Patent 5, 721, 626).

Regarding Claim 7, Mutze discloses:

- Substantially straight line sensor array spanning the first dimension of said image plane (Figure 2, item 20);

Mutze fails to specifically disclose:

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- Linear actuator for moving said substantially straight line actuator (read: substantially straight line sensor) linearly along the second dimension of said image plane;

Kimura teaches:

- Substantially straight line sensor array spanning the first dimension of said image plane (Figure 3 item 23);
- Linear actuator for moving said substantially straight line actuator (read: substantially straight line sensor) linearly along the second dimension of said image plane (Figure 3 items 25 – 31, Column 2 lines 21 – 52, Column 3 lines 43 – 67);

Such an arrangement would be advantageous in providing a simple control using a stepping motor for high quality image reading with a finely adjustable timing system.

Therefore, it would have been obvious to include the linear actuator for moving said substantially straight line actuator (read: substantially straight line sensor) linearly along the second dimension of said image plane so as to provide an improved timing system capable of producing high quality images.

Regarding Claim 8, Kimura teaches:

- Electric motor (Figure 3 item 27);
- Belt and pulley system (Figure 3 items 25, 26 and 28 – 31).

Claims 11 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mutze (DE 4100400 A1) in view of Kawamoto et al. (U.S. Patent 5, 920, 063).

Regarding Claim 11, Mutze fails to disclose:

- At least one more (i.e. two or more) high resolution sensor array spanning a first dimension of said image plane;
 - Thereby providing a plurality of high resolution sensor arrays, wherein said plurality of sensor arrays are moved through portions of said second dimension of said image plane to more rapidly complete image data acquisition at discrete intervals along the entirety of said image plane.

Kawamoto teaches:

- At least one more (i.e. two or more) high resolution sensor array spanning a first dimension of said image plane (Column 1 lines 41 – 52);
 - Thereby providing a plurality of high resolution sensor arrays, wherein said plurality of sensor arrays are moved through portions of said second dimension of said image plane to more rapidly complete image data acquisition at discrete intervals along the entirety of said image plane.

Such an arrangement would be advantageous in providing an image sensing device capable of sensing image information at a higher scanning speed and thus for a shorter time period.

Therefore, it would have been obvious to one of ordinary skill in the art to include the at least one more (i.e. two or more) high resolution sensor array spanning a first dimension of said image plane thereby providing a plurality of high resolution sensor arrays, wherein said plurality

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of sensor arrays are moved through portions of said second dimension of said image plane to more rapidly complete image data acquisition at discrete intervals along the entirety of said image plane so as to provide a higher scanning speed.

Regarding Claim 15, see examiners comments for Claim 11.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mutze (DE 4100400 A1) in view of Deangelis et al. (U.S. Patent Publication 2002/0149679 A1).

Regarding Claim 19, Mutze fails to disclose the step of moving comprising:

- Continuously moving sensor array through the image plane thereby generating a sequence of digital still images in rapid succession enabling said digital camera to capture moving video image data.

Deangelis teaches:

- Continuously moving sensor array through the image plane thereby generating a sequence of digital still images in rapid succession enabling said digital camera to capture moving video image data (paragraph [0014], [0016]).

Such an arrangement would be useful in generating video image data as an alternate form of image data capture for recording events in a sequence of data to be played back as video image data or shown as a frame by frame still image.

Therefore, it would have been obvious to one of ordinary skill in the art to include the step of Continuously moving sensor array through the image plane thereby generating a sequence of digital still images in rapid succession enabling said digital camera to capture

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moving video image data so as to provide the option of recording video image data in addition to still image data.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mutze (DE 4100400 A1) in view of Kimura (U.S. Patent 5, 721, 626) in further view of Shimizu et al. (U.S. Patent 4, 579, 122).

Regarding Claim 20, Mutze fails to disclose:

- Converting light into digital image data performed at different rates at different points during travel of the sensor array along the second dimension of the image plane.

Kimura teaches:

- a driving system capable of switching the rate at which the sensor array travels along the image plane and a corresponding exposure time (Column 2 line 21 – Column 4 line 62).

Such an arrangement would be useful in allowing the driving time for driving the image sensor along the image plane to be adjusted.

Shimizu teaches:

- data acquisition near the center of the image is most important, as well as, scanning the image at the center more slowly than at the edges to improve the resolution of the data at the center of the image (Column 1 lines 52 – 53, Column 1 line 63 – Column 2 line 2).

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Such an arrangement would be useful in providing more data in the center of the image and would thus require a change of exposure time according to the rate of travel along the second dimension of the image plane.

Therefore, it would have been obvious to one of ordinary skill in the art to include the step of converting light into digital image data performed at different rates at different points during travel of the sensor array along the second dimension of the image plane so as to provide more information at the center of the image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric D Wisdahl whose telephone number is (703) 305-4915. The examiner can normally be reached on 9:00 - 6:00 Mon-Thur every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on (703) 308-9644. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-5399 for regular communications and (703) 308-5399 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center 2600 customer service office which can be reached at telephone number (703) 306-0377.

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edw

August 11, 2003

A handwritten signature in black ink, appearing to read 'Andrew Christensen', with a long horizontal flourish extending to the right.

**ANDREW CHRISTENSEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600**